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**Family Perspectives on Braille Literacy: Results from the ABC Braille Study**

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### **Abstract**

Family members of children in the ABC braille study revealed their perspectives about braille literacy. Interview data showed that they often read to their child and provided them with braille books. Their primary goal for their children was to learn to read and write. Also, data was compared with parents' level of education and proficiency in braille.





### **Family Perspectives on Braille Literacy: Results from the ABC Braille Study**

Family members and care-givers play an integral role in nurturing positive literacy experiences for their children. Research clearly demonstrates that children who are read to from an early age and have access to books exhibit greater success with learning to read and write (Senechal & LeFevre, 2002). Also, young children who are provided with rich literacy experiences demonstrate high levels of motivation to achieve literacy skills (Baker & Wigfield, 1999; Morgan, Compton, & Fuchs, 2008). Sometimes, however, families of students with disabilities believe that they lack access to books and materials or do not have the skills needed to provide positive literacy experiences for their children (Light & Smith, 1993; Marvin & Mirenda, 1993).

The acquisition of literacy skills for children with visual impairments is influenced by family and care-giver support. Craig (1996) documented that families view learning to read and write as a priority for academic success. Koenig & Farrenkopf (1997), on the other hand, found that families often viewed the acquisition of literacy skills as secondary to acquiring life skills for their children. Results from both studies indicated the need for continued support by professionals to enhance literacy experiences for children with visual impairments.

In this investigation, family members of students who participated in the Alphabetic and Contracted Braille Study (ABC Braille Study) shared their perspectives. They completed a survey that examined their level of education, proficiency in braille, and goals for their children. They also discussed how often they read aloud to their children and whether or not they had braille books at home.

### **Method**

#### **Procedure**



During the Spring visit of each student's first year in the ABC Braille Study, families were contacted by an ABC researcher, and asked if they would complete a Family Survey. The primary care-giver, who was identified as the individual who spent the most time engaged with the student, was interviewed. The interviews were completed via telephone or in person. The survey took 30-45 minutes to complete depending on the amount of information the participant wished to share.

### **Participants**

In all, 31 individuals participated in the interviews. The majority of the individuals who responded to the survey were Caucasian ( $n = 17$ ; 54.8%). Other ethnicities were represented and included five individuals who were Hispanic (16.1%), three who were African American (9.7%), two who were Canadian (6.5%), one who was bi-racial(3.2%), and one who was Asian (3.2%). More than half of the participants had a college degree or higher ( $n = 16$ ; 51.6%; See table 1). When ethnicity was compared with participants' level of education data showed that individuals who were from minority backgrounds had less education than those from non-minority backgrounds. Six of the eight individuals who identified themselves as African American or Hispanic had less than a college education. Only one of the eight individuals had a graduate degree. Among the respondents who identified themselves as Hispanic, four of the five interviewees did not have a college degree, and one person did not answer the question. Among those with college degrees and graduate degrees, fifteen of the sixteen participants identified themselves as Caucasian, Canadian, Asian, or American.

### **Instrumentation**

A 35-item questionnaire was constructed by the ABC Braille research team to examine what types of literacy activities took place in the home and how often these activities occurred.



The interview was based on the survey used by Craig (1996) in his research. The first section of the interview collected demographic information. Next, families and care-givers were asked about their knowledge of reading and writing braille. Also, they were asked about the availability of braille books and materials in the home including games, labeling of food items and furniture, and equipment used by the student in literacy activities. The interviewer asked family members how often they read to their child, as well as whether or not the child had braille books at home. The final section of the interview asked parents and care-givers about availability of resources to enhance braille literacy.

### **Data Collection and Analysis**

Each ABC researcher assigned to a student participant initiated contact with the family, and conducted the family interview. Data were collected by recording the information directly on to each survey. Questions related to education, ethnicity, and knowledge of the braille code were presented in a list format so that respondents checked the appropriate response. Questions regarding the amount of time spent reading books to students allowed participants to make ranked choices. For example, "How many times do you read to your child each week?: None, 1-2 times per week, 3-4 times per week, 5-6 times per week, 7-more times per week. Survey questions that asked families about the way braille is used in the home required dichotomous (e.g., yes/no responses), followed by an opportunity to expand on the response.

Data were analyzed by using frequency counts and percentages. No empirical statistical analyses were used to interpret the data. Even though the researchers examined the relationship between education, ethnicity, knowledge of braille, and levels of achievement, no correlational analyses were conducted, due to the uneven grouping of students.

### **Research Questions**





The following research questions were addressed: a) What is the primary goal that participants have for their child? b) Do children have access to books at home? c) How often do care-givers read to their child at home? Do they read print or tactile books? d) Does level of education of the care-givers have an impact on the frequency reading aloud to children? e) Are there any relationships between learning contracted/uncontracted braille and ethnicity, level of education and braille proficiency of the primary care-giver, having access to books at home or frequency of being read to at home? f) Are there any relationships between high and low achieving students and ethnicity, level of education and braille proficiency of the primary care-giver, having access to books at home or frequency of being read to at home?

## **Findings**

### **Primary Goals for Care-Givers' Children**

When care-givers were asked what their primary goal for their child would be, the majority of the interviewees identified learning to read and write as the most important goal (n = 18; 58%; See table 5). The second and third most common response was for their child was to learn self-help skills (n = 6; 19.4%) and to make friends (n = 2; 6.5%). Other goals included learning to communicate effectively (n = 1; 3.2%), being happy (n = 1; 3.2%), and developing vocational skills (n = 1; 3.2%). Two (6.5%) participants did not respond. Respondents unanimously (100%) stated that they expected their child to use braille as a primary medium throughout education and their careers.

### **Knowledge of Braille**

When participants were asked if they read braille 16 (51.61%) responded that they read braille and 15 participants stated that they did not read braille (48.39%). However, when asked at what level of proficiency did the participant have in braille, a larger percentage of participants



stated that they knew some braille ( $n = 20$ ; 64.5%). Most individuals stated they knew at least the braille alphabet and some contractions ( $n = 9$ ; 29.03%) or at a minimum they knew the alphabet ( $n = 8$ ; 25.80%). Only three (9.7%) of the primary care-givers stated that they knew contracted braille (see table 2). Seven (22.6%) participants indicated that they did not know any braille, and four participants (12.90%) did not respond. When analyzing the data by ethnicity, data showed that 11 of the 16 participants who said that they read braille were Caucasian (see table 3), six of whom stated that they knew the alphabet and some contractions, and three of whom stated knowing contracted braille. Surprisingly, all of the respondents who identified themselves as Hispanic ( $n = 5$ ) stated that they did not know any braille, but one individual also contradictorily responded that he/she know the alphabet and some contractions. Data showed that individuals with a higher level of education also had more knowledge of the braille code. When level of education was compared with knowledge of the braille code, 13 of the 16 individuals who state that they read braille had a college degree or higher, as compared to 11 of the 15 individuals who did not have a college degree (see table 4).

#### **Access to books and frequency of reading aloud at home**

Results from the survey indicated that 80.6% (25 of the 31 respondents) of the students had access to braille and/or tactual books at home, while only 19.4% (6 of the 31 respondents) did not have access to braille and/or tactual books. Ninety percent of the respondents indicated that they read to their child at least once or twice a week, and over fifty percent indicated that they read to their child more than four times a week (See table 6). All three of the respondents that indicated they read to their child less than once a week also stated that they did not have braille or tactual books at home. Additionally, nearly all individuals were reading to their child at least 1-2 times per week using tactile books. The 4 individuals who said they “never” read print





books all said that they read braille books at least 1-2 times a week. Level of education, when compared with the frequency that care-givers read to their children, indicated that individuals with more education read more frequently to their children. Data showed that 11 of the 16 individuals who had college degrees read to their children using tactual books more than 4 times a week, versus 11 of the 14 individuals who did not have college degrees read to their children less than 4 times a week (see table 7).

### **Low/High Achieving Students**

Using previous data from ABC Braille Study publications, the family members of the students in the ABC Braille Study were separated into two groups based on the academic achievement of the students (Wall Emerson, Sitar, Erin, Wormsley, & Leigh, 2009). In this study, researchers formed two groups of students based on their performance on reading assessments (Basic Reading Inventory and Brigance), the high achievement students and low achievement students. The seven students from the low achievement group were described as, “These students were below grade level on at least 66% of all their reading assessments in the study and had no assessment on which they performed above grade level, pg. 597.” The eight students who fell into the high achievement group were described as, “These students were above grade level on at least 62.5% of all their reading assessments in the study and had no assessment on which they performed below grade level, pg. 597.”

All students in the high performing group had access to braille books at home, versus only 5 of the 7 in the low performing group who had access to braille books at home (Table 8). Also, students in the high performing group were read to by their primary care-giver more often. All eight of the students were read to at least 3-4 times per week, versus four of the seven children in the low performing group who were read to at least 3-4 times per week. Five of the



eight care-givers of the students in the high performing group had a college degree or higher, versus 3 of the seven in the low performing group. Lastly, level of braille proficiency of care-givers did not show any relationships with high and low achieving students.

## **Discussion**

### **Summary**

Generally speaking, the participants in the study valued literacy and braille. More than half of the respondents identified literacy skills as the most important goal for their children. They often read to their children, and most children had access to braille books at home. Consistent with past research, data showed that high achieving students had more access to braille books at home and were read to more often than low achieving students (Senechal & LeFevre, 2002). Respondents envisioned braille being the primary literacy medium throughout their child's education, and more than half of the respondents had learned at least the alphabet in braille. However, despite the value placed on literacy and braille, less than 10% of care-givers were proficient enough to read contracted braille.

The level of education and ethnicity of the primary care-giver had an impact on several factors. First, individuals with a high level of education read to their children more often. Second, individuals with college degrees or higher were more proficient in braille and read to their children using braille books more often. In regards to ethnicity, interviewees who were Hispanic indicated reading to their children less than individuals from other ethnic backgrounds, at a rate of about 1-2 times per week. Individuals who were Hispanic also showed less proficiency than those who were Caucasian.

### **Limitations**



While each ABC researcher was trained to implement the family interview, the credibility of responses may have been flawed by having only one care-giver respond to the questionnaire. Also, because responses were obtained via self-report, rather than direct observation, or having a second family member complete the interview, responses may have been skewed. Another limitation of the study is that families knew that the research was about literacy. As a result their responses may have been more favorable towards literacy. Also, responses are limited to the person who responded to the survey. The responses do not represent “household” consensus. Finally, the data represented disproportionate groupings based on ethnicity, with small grouping of children from minority backgrounds. Data that is related to ethnicity should be interpreted with caution.

### **Implications**

Despite the limitations imposed by the way in which family responses were obtained, and a relatively small sample size of respondents, the information gleaned from this study parallels that of Craig (1996) and Breman, Luze, & Petersen (2009). While these studies examined responses from families of preschool students, care-givers’ goals were similar. Families viewed academic success as the primary goal for their child. Also, these studies showed that the availability of braille materials, including books, was essential to enhance literacy activities in the home. Like the families in the Craig and Breman, et. al., studies, families from the ABC Braille Study believed that professional support from teachers of students with visual impairments was critical to ensure positive literacy experiences.

Of great interest was the fact that over fifty percent of the families in the ABC Braille Study indicated that they knew some braille. This seemed to be especially true for the families of





students who were high achievers. Many of these families indicated that they knew some contracted braille. It would be important to examine this relationship in future investigations to determine if there is a correlation between level of achievement and parents' and care-givers' knowledge of braille. Also, seeing that less than 10% of the interviewees were proficient in contracted braille, it seems important for professionals to design user-friendly curriculum for families to learn to read and write contracted braille.

The availability of braille books and materials is another area in which families need continued support. This appears to be especially true for minority families. Providing books in braille or braille and print, may not be as accessible for these groups. As a result, families may not have the means to read to their child. Teachers of students with visual impairments must take an active role in providing needed resources in the family's native language so that they can participate more actively in literacy experiences with their child who is blind or visually impaired.

In subsequent research studies it would be interesting to continue to examine the relationship between high levels of academic achievement and parent involvement in reading and writing activities in the home for students with visual impairments. Research for sighted children, clearly shows that students who are exposed to rich literacy experiences in the home demonstrate academic success in school. While the findings of this study show a relationship between families' knowledge of braille and students' level of success in academic pursuits, further investigation is needed. Perhaps designing a study in which three family groups (no braille, uncontracted braille, and contracted braille) are interviewed, honing in on how families were trained to learn braille, how braille is used in the home, and how much time the family spends reading books to the child with a visual impairment.



While the family interview was only one piece of the ABC Braille Study agenda, it provided insightful information to share with the field. Two important issues emerged from the interview data. First, family involvement is essential for literacy success. Results emphasized the importance of families and care-givers implementing literacy experiences in the home. Equally important is involvement of the teacher of students with visual impairments in assisting families with resources. The findings reinforced the importance of families and professionals working together to ensure quality literacy experiences for students with visual impairments in the home and at school. It is clear that additional research and development of curricula is needed to support this effort. Teacher preparation programs in visual impairment and inservice training for practicing teachers of students with visual impairments must place greater emphasis on teaching effective reading and writing strategies, developing strategies to work with English Language learners, and providing up-to-date resources to families regarding braille and literacy.





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**Table 1 - Ethnicity & Level of Education**

	# of responses (out of 31)	Some HS	HS diploma or GED	Some College	College Degree	Graduate Degree	No Re- sponse
Caucasian	17 (54.8%)	1	2	3	9	2	0
Hispanic	5 (16.1%)	1	2	1	0	0	1
African American	3 (9.7%)	1	1	0	0	1	0
Canadian	2 (6.5%)	0	0	0	2	0	0
Asian	1 (3.2%)	0	0	0	0	1	0
Bi-racial	1 (3.2%)	1	0	0	0	0	0
American	1 (3.2%)	0	0	0	1	0	0
Unknown	1 (3.2%)	0	1	0	0	0	0
Summary of Level of Education		4 (12.9%)	6 (19.4%)	4 (12.9%)	12 (38.7%)	4 (12.9%)	1 (3.2%)

**Table 2 - Braille Proficiency of Participants**

	# of responses (out of 31)	Percentage
None	7	22.6%
Alphabet	8	25.8%



Alphabet and some contractions	9	29.0%
Contracted braille	3	9.7%
No response	4	12.9%

**Table 3 - Braille Proficiency Compared with Ethnicity**

Ethnicity of child	Does anyone at home read braille?		What braille do people at home read				
	Yes	No	none	alphabet	alphabet and some contractions	contracted braille	No Response
Caucasian	11	6	4	4	6	2	1
Hispanic		5	3		1		1
African American	2	1			2		1
Canadian	2			2			
Asian American	1					1	
Bi-racial		1					1
American		1		1			
No Response		1		1			
Total	16 (51.61%)	15 (48.39%)	7 (22.58%)	8 (25.80%)	9 (29.03%)	3 (9.68%)	4 (12.90%)





**Table 4 - Braille Proficiency Compared with Level of Education of Respondent**

	Does anyone at home read braille?		What braille do people at home read				
Education of respondent	Yes	No	none	alphabet	alphabet and some contractions	contracted braille	No Response
Some high school		4	1		1		2
HS/GED	3	3	1	1	2	1	1
Some college		4	2		1		1
College degree	9	3	2	6	4		
Graduate degree	4			1	1	2	
No response		1	1				
Total	16 (51.61%)	15 (48.39%)	7 (22.58%)	8 (25.80%)	9 (29.03%)	3 (9.68%)	4 (12.90%)

**Table 5 –Care-Givers Primary Goals for their Child**



	# of responses (out of 31)	Percentage
Learning to read and write	18	58.0%
Learning self-help skills	6	19.4%
Making friends	2	6.5%
Other	3	9.7%
No response	2	6.5%

**Table 6 - Frequency of read aloud at home**

	Number of time individual reads aloud using print books each week		Number of time individual reads aloud using tactual books each week	
	# of responses (out of 31)	Percentage	# of responses (out of 31)	Percentage
More than 4 times a week	10	32.3%	14	51.6%
3-4 times a week	3	9.7%	6	19.4%
1-2 times a week	8	25.8%	8	25.8%
Less than once a week	6	19.4%	3	9.7%
Never	4	12.9%	0	0.0%



**Table 7 - Level of education compared with frequency of read aloud**

	Number of time individual reads aloud in print each week					Number of time individual reads aloud using tactual books each week				
	Never	< 1 time	1-2 times	3-4	> 4 times	Never	< 1 time	1-2 times	3-4	> 4 times
Education of person										
Some high school	1	3					2	1	1	
HS/GED	1		2	1	2			2	2	2
Some college		1	1	1	1			1	2	1
College degree	1	2	5	1	3			3	1	8
Graduate degree					4			1		3
No response	1						1			
	4	6	8	3	10	0	3	8	6	14

**Table 8 - Low /High Achieving Students**

Low Performing Students					
Student ID	Ethnicity	Level of education	Braille proficiency at	Access to braille books	# of times parent reads

Polymer	Crystal structure	Space group	Unit cell dimensions (Å)	Volume (Å <sup>3</sup> )	Z	Density (g/cm <sup>3</sup> )	M <sub>n</sub> (g/mol)	M <sub>w</sub> (g/mol)	M <sub>w</sub> /M <sub>n</sub>
P1	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P2	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P3	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P4	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P5	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P6	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P7	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P8	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P9	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20
P10	Orthorhombic	P2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	a = 1.05, b = 0.85, c = 0.85	0.75	4	1.15	1000	1200	1.20



			home	at home	to student
1	Caucasian	Some HS	Braille alphabet and some contractions	Yes	3-4 times a week
3	Hispanic	Some HS	None	No	Less than once a week
203	Caucasian	Some college	No response	Yes	More than 4 times a week
204	Biracial	Some HS	No response	Yes	1-2 times a week
229	Caucasian	College degree	Braille Alphabet	Yes	2-3 times a week
233	American	College degree	Braille Alphabet	Yes	More than 4 times a week
309	Caucasian	Graduate degree	Braille Alphabet	No	More than 4 times a week

#### High Performing Students

Student ID	Ethnicity	Level of education	Braille proficiency at home	Access to braille books at home	# of times parent reads to student
7	Caucasian	Some college	None	Yes	3-4 times a week



15	Caucasian	College degree	None	Yes	3-4 times a week
18	Asian American	Graduate degree	Contracted braille	Yes	More than 4 times a week
206	Caucasian	College degree	Braille alphabet	Yes	More than 4 times a week
223	African American	Some high school	No response	Yes	Less than once a week
305	Caucasian	College degree	Braille alphabet	Yes	More than 4 times a week
308	Caucasian	Some college	None	Yes	3-4 times a week
31	Caucasian	College degree	Braille alphabet and some contractions	Yes	More than 4 times a week







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